

**(19) World Intellectual Property Organization
International Bureau**



(43) International Publication Date
22 January 2004 (22.01.2004)

PCT

(10) International Publication Number
WO 2004/006980 A3

(51) International Patent Classification⁷: A61B 1/04

A61B 1/04

[IL/IL]; 19100 Kibutz Merhavia (IL). **BAROR, Yakov**
[IL/IL]; 10 Tidhar Street, Vardia, 34655 Haifa (IL).

(21) International Application Number:

PCT/IL2003/000564

(74) Agents: SANFORD T. COLB & CO. et al.; P.O. Box 2273, 76122 Rehovot (IL).

(22) International Filing Date: 8 July 2003 (08.07.2003)

8 July 2003 (08.07.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

Priority Data: 60/395,694 11 July 2002 (11.07.2002) US

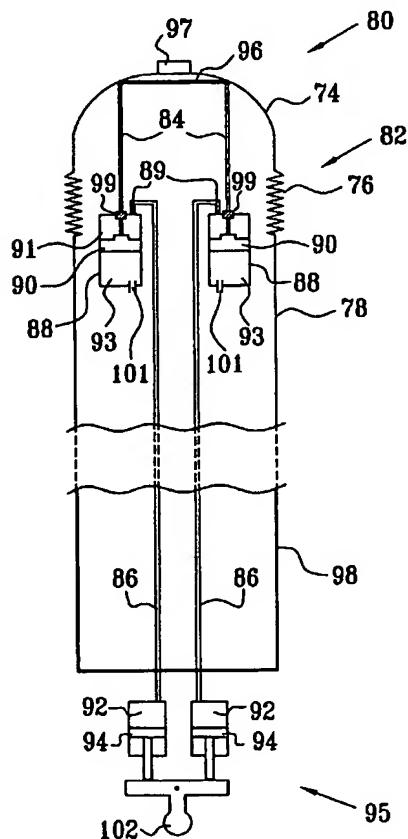
(71) **Applicant (for all designated States except US): SIGHT-LINE TECHNOLOGIES LTD. [IL/IL]; Advanced Technology Center, Matam, 31905 Haifa (IL).**

(81) **Designated States (national):** AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) **Designated States (regional):** ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,

[Continued on next page]

(54) Title: PISTON-ACTUATED ENDOSCOPIC STEERING SYSTEM



(57) Abstract: Endoscopic steering instrument is provided, including an endoscope (80) having distal (82) and proximal (98) ends thereof. In a preferred embodiment, at least one proximal cylinder (92) is disposed in a vicinity of the proximal end, and at least one proximal piston (94) is slidably coupled to the at least one proximal cylinder. A first distal cylinder (88) is disposed at the distal end, and a first distal piston (90) is slidably coupled to the first distal cylinder. A second distal cylinder (88) is disposed at the distal end, and a second distal piston (90) is slidably coupled to the second distal cylinder. A first tube (86) is coupled to the first distal cylinder and a second tube (86) is coupled to the second distal cylinder.



SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:

12 August 2004

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL03/00564

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61B 1/04
 US CL : 600/114

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 U.S. : 600/114, 115, 146-152

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 EAST - search terms: endoscope, piston, cylinder, actuation

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US, 4,962,751 A (KRAUTER) 16 October 1990 (16.10.1990), See entire document.	1, 2, 4-8, 10, 11, 13-16
Y		-----
A	US 6,162,171 A (NG et al) 19 December 2000 (19.12.2000), See entire document.	3, 9, 12 1-16
A, P	US 6,485,409 B1 (VOLOSHIN et al) 26 November 2002 (26.11.2002), See entire document.	1-16
A	US 6,048,307 A (GRUNDL et al) 11 April 2000 (11.04.2000), See entire document.	1-16

 Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

25 February 2004 (25.02.2004)

Date of mailing of the international search report

02 JUL 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 Facsimile No. (703) 305-3230

Authorized officer

Beverly M. Flanagan

Telephone No. (703) 308-0858